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8 August 1990

Mr. Edgar G. Kaup, P.E.
Case Manager
Bureau of Case Management
N.J. Department of Environmental Protection
Division of Hazardous Waste Management
401 East State Street
5th Floor
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Trenton, New Jersey 08625

RE: L. E. CARPENTER PROJECT
WHARTON, NEW JERSEY
RISK ASSESSMENT

Dear Ed:

The WESTON staff developing the Risk Assessment for the L.E. Carpenter Site have determined the scope of the human health and ecological components of the baseline risk assessment. It is our conclusion that both these risk assessment components will reflect the exposure potential that would be expected at the site, especially from the perspective of ecological considerations. We conclude that the following scenarios will be appropriate for inclusion in the baseline risk assessment.

HUMAN HEALTH

- Worker Exposure Scenario - A worker exposure scenario is appropriate because a portion of the facility is currently leased to at least two different firms. Although neither firm appeared to be engaged in activities that require workers to be outdoors and in frequent contact with the soils, the site has been used for industrial purposes for over 100 years and there is a large industrial facility adjacent to the site. For the past and present uses of the site and a portion of the surrounding environs, exposure potential of industrial workers is a primary consideration for both current and future use scenarios. The current industrial use scenario will be limited to exposure of office workers via inhalation of dust only, as no outside activities are performed by those office workers at present. Future use consideration will include the assumed use of the facility by workers engaged in outdoor

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activities. The future industrial exposure scenario will be one that assumes contact with the soil via the dermal routes as a result of hand-to-mouth contact with soils (incidental ingestion) and by inhalation of dust and any vapors that may be present.

Use of the groundwater for industrial purposes is not envisioned, because the site is located in an urban setting served by a community water supply. In addition, a significant surface water source (the Rockaway River) flows through at least a portion of the site and was used in the past to generate power for the site. Assuming no prohibition of use of either the community water supply for the Rockaway River, use potential of the subsurface water for industrial purposes is very unlikely. Hence, no groundwater use scenarios are proposed.

- **Trespasser Exposure Scenario** - A scenario that evaluates exposure potential to local residents trespassing on the facility is appropriate. On the site in at least two places we saw tire tracks made by three-wheeled vehicles. On the banks of the railroad trestle immediately below the Washington Forge Pond, there were pathways made to the river by persons who may have engaged in fishing. Because this site is not entirely fenced and a residential area exists adjacent to a portion of the site, trespassing is a scenario that must be considered. We did not find evidence of frequent trespassing at any area other than the river, and based on the type of activities evidenced at this site, the primary trespassers are likely to be persons greater than six years of age in the area of the industrial portion of the site. As a result of our observations, we feel that the trespasser scenario on the site proper should reflect infrequent exposure, i.e., no more than once weekly to soil, dust and vapors by persons aged six and above for 6 months/year (the warmer months).
- **Recreational Scenario - Rockaway River** - As noted earlier, there is evidence to assume that fishing of the Rockaway River may occur. Fish taken from Washington Forge Pond would not be expected to contain any site-related substances because it is upgradient from the site in terms of groundwater movement. Further, the pond is positioned such that surface soil movement into the pond is unlikely. Finally, movement of fish from the Rockaway River in the vicinity of the site into the pond is prevented by a concrete barrier that forms the spillway of the pond.



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The fishing scenario for both present and future exposure considerations would consist of assumed ingestion of fish taken from the water near the site. Both adults and children would eat the fish in amounts that could be considered representative of recreation fishing activity (i.e., on the order of 5 grams of fish ingested per day over a lifetime).

Other recreational uses of the surface waterbodies appeared to be less likely than use for fishing. The Rockaway River could have greater potential for wading/swimming by area children because it is shallow and a railroad right-of-way on the far side of the stream affords access by children. Because of the access consideration, the Rockaway River will be assumed to provide the opportunity for wading and swimming by local children.

The wading/swimming scenario will include exposure by dermal contact with water and incidental ingestion of sediments and water. Frequency of exposure would be assumed to be once weekly for six months per year (the warmer months) in both the present and future exposure cases.

• Air Exposure Scenario - The proximity of residents to the site dictates that consideration be given to exposure potential via windblown dust and vapors coming from the site. If the benzene and several metals found previously in air can be established to be site-related substances or if subsequent air sampling shows the presence of other site related substances, then an exposure analysis of the air pathway is relevant. The air scenario both current and future would consist of a resident assumed to be living at the location of sampling for a period of 70 years. Exposure to average and maximum concentrations of vapors found in air would be evaluated, as would be respirable fractions of windblown soil that would be suspended in air as a result of natural wind currents (i.e., a PM10 for an urban area would be assumed).

• Groundwater Use Scenario - Although not based on personal observation, there is a possibility that groundwater use is occurring downgradient from the site. In the Geo-Engineering report, unconfirmed use by three residents and two municipalities reportedly occurs within one mile downgradient of the site. If operating wells are confirmed, a current use scenario to include household use of the groundwater by humans (i.e., drinking, cooking, showering, laundering) is appropriate. In this scenario, only household use will be assumed to occur and that other uses by groundwater such as for watering livestock, irrigation of vegetables or use in wading pools are appropriate only if further information



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indicates significant use by those means. We feel that household use of the water is the most important route for exposure to occur, and the potential need for remediation will be based primarily on the ability to use the water for human consumption. As a result, the future use scenario will include household consumption of the water daily over a 5-year (child) and 65-year (adult) period and is the most appropriate of the groundwater use scenarios for this risk assessment.

The above scenarios represent the most relevant approaches by which potential impacts to human health may be evaluated, both at present and in the future. Ecological considerations are to be discussed in the following section.

ECOLOGICAL

The L.E. Carpenter site contains approximately 2-3 acres of vegetated cover and is bordered to the south by the Rockaway River; to the east by a drainage ditch located on Air Products and Chemical, Inc. property, and to the south and west by urban buildup. The majority of the vegetation on site is early successional herbaceous coverage with forested areas restricted primarily to the banks of the Rockaway River and along an abandoned railroad bed. Many of the plant species observed are invader species characteristic of highly disturbed areas, (i.e., poison sumac and ivy, plantain, mullein, ragweed, red maple, aspen, basswood). During the site visit we observed no adverse effects on the terrestrial or aquatic flora. The terrestrial fauna seen on site was limited to species normally found in an urban northwest setting (i.e., house sparrow, starling, blue jay, pigeon, mourning dove, chipmunk, cottontail rabbit).

Because of the limited current and future potential of the terrestrial ecosystem at the site, we believe that any ecological risk analysis should focus on the aquatic ecosystem. We feel that the quality of surface water and sediments should be evaluated with regard to impact potential to benthic organisms living within that stream reach. Additionally, fish uptake potential for site related substances should be evaluated to determine whether harm might be occurring to the fish or to animals potentially feeding on them. The evaluation will not involve actual sampling and analysis. Rather the evaluation of benthos impact potential would consist of comparison of surface water quality in the affected stream reach with ambient water quality criteria intended to be protective from chronic exposure. Impact potential to fish and other wildlife using the fish would be determined by modeling of uptake of site-related substances



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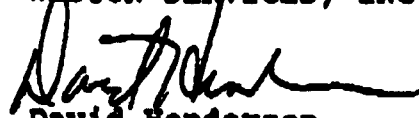
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from water in contact with sediments containing those substances. In assessing the benthos and fish impact potential, we feel that the major ecological concerns will be addressed.

With this basis, WESTON will be proceeding with the Risk Assessment. Should you or your risk assessment staff have any comments, please contact me no later than 24 August so that adjustments can be made. If NJDEP has no comments, we will move forward so that we can remain on the aggressive schedule that has been presented.

Very truly yours,

WESTON SERVICES, INC.


David Henderson
Project Manager

DH/apc

cc: C. Anderson, L.E. Carpenter
V. Cappello, WSI